PRELIMINARY DESCRIPTIONS OF TWO NEW MAMMALS FROM SOUTH AUSTRALIA.

1. *Thalacomys minor,* var. *miselius* (subsp. nov.).
2. *Pseudomys (gyomys) apodemoides* (sp. nov.).

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Thalacomys Minor Miselius, subsp. nov.

A small form exhibiting many of the characters of both *minor* and *leucurus* as described. Size about as in *minor,* but distinguished from the typical variety by its much paler and more castaneous general colouration, by its basal under-fur, dorsal tail stripe, and sole of pes being slate and not black, by its entirely white limbs, and by the constant presence of a rhinal callous confluent with the rhinarium. From *leucurus*, as described, it is distinguished by the less fulvous tone of its colouration and by the presence of dark areas of fur on the dorsum of tail and sole of foot.

Pelage exceedingly fine, soft and silky and in the series of summer skins available, quite without guard hairs. General colour of the dorsal surface, when viewed from a little distance, a delicate cinereus tan. In the mid-lumbar region the fur is 22 mm. long. For its basal $\frac{3}{5}$ it is a medium slate colour, merging distally into a subterminal band of very pale grey and culminating in a bright chestnut tan tip. The demarkation of the pale grey and chestnut portions from one another is vague, and their relative lengths variable, but the latter never occupies more than $\frac{1}{5}$ of the length of the shaft. When the tips are massed by compressing the fur with a comb, the terminal colour is seen to vary from Ridgway's "Hazel" to "Chestnut," but owing to the fluffy nature of the pelage the tips are much dispersed and the subterminal pale grey band greatly reduces the richness of the external colour.

The muzzle, to about the posterior level of the mysticial vibrissae, is clothed with adpressed short silvery hairs, but the rest of the dorsal surface is as described, except that the length of fur and depth of colour of the basal zone diminish both cephalad and caudad from the lumbar area.

The ventral surface is pure white externally, very pale slate basally, and in some individuals there are mid-ventral areas where the hairs are white throughout their length. The colouration of the sides is like that of the back, and merges imperceptibly with the ventrum. The rhinarium is flesh-coloured, and a rhinal callous is present in all specimens and extends back along the muzzle as much as 9 mm. All sets of facial vibrissae are well developed, the smaller members of the sets white, the larger black basally and white distally. The ear is pale flesh-coloured in the conch, but distally the pinna is prominently dappled with slate or black. Externally at the base it is clothed with the tan-tipped hairs of the head, but for its distal $\frac{4}{5}$ it is sparsely covered with short adpressed iron-grey or silvery hairs, forming at the margins a distinct though not prominent fringe. Internally it is almost naked save for a narrow area along the postero-distal margin which is clad as on the outer surface. The forelimb is white on all surfaces externally, though on the upper segment the hairs are pale slate basally. The palm of the manus is pink and naked except for a narrow tract of adpressed hairs in its centre, quite isolated from those of the carpus. The interdigital pads, however, are not

especially well developed. The upper surface of manus and digits is rather scantily clothed with white hairs. The femoral portion of the hind limb is covered with body hairs, darker and less differentiated than those of the fore limb, but the tibial segment is almost naked. The pes, which is exceedingly slender and delicate, is uniformly white above to the extremity of the digits. Below, the sole is hairy throughout except for calcaneal and interdigital pads, and varying lengths of the portion lying between these points is coloured pale slate; the rest white.

The tail is almost circular in section. Its basal $\frac{1}{5}$ is clothed above and below with body fur, the distal $\frac{2}{5}$ bears on its upper surface a beautiful crest of progressively lengthening pure white opaque hairs, and the central $\frac{2}{5}$ is short-haired on all surfaces, but in the centre line of its dorsum bears a narrow well-defined longitudinal band of pale slate hairs, bordered on either side by fawn. Unlike the dark caudal hairs of the other forms, these in *miselius* do not lengthen to form a crest and are quite confined to the centre line of the upper surface. Below, the tail is white and short-haired in its entire length.

The *skull*, both in structure and dimensions, is very close to that of *minor* as described by Spencer. [Roy. Soc. Vict., vol. ix. (new series), 1897, p. 6.]

Dimensions of Type (measured in the flesh).

Head and body, 250 mm.; tail, 155 ; pes, 74; ear,[1] 72.

Skull.—Basal length, 62·5; greatest breadth, 30·5; nasals length, 29·5; nasals greatest breadth, 5·7; constriction, 10·5; palate length, 38·8; palate breadth, inside M^2, 10; ant. palat. foramen, 6·5; basicranial axis, 19·5; basifacial axis, 43·5; facial index, 223; M^{1-3}, 9·5.[2]

Habitat.—Eastern portion of the Lake Eyre Basin; type locality, Cooncherie, on the lower Diamantina in South Australia; lat., 26° 32′, approx.

Type of subspecies in the South Australian Museum. Registered number, M. 3465 (field number, 1218 HHF).

A series of twelve specimens, personally collected by L. Reese, Esq., and the author, and examined in the flesh, December, 1931.

A somewhat fuller description of this form has been given than is usually accorded to subspecies, partly because the material relating to *minor* which has been available for comparison is not as adequate as I would wish, and partly to emphasize its obvious relation to *Th. leucurus* Thos. I have no doubt that the latter species (the single example of which came from South Australia) was founded on a very immature and greatly faded spirit specimen of the present form. There are no features in the skull, dentition, manus, pes, and dimensions of *leucurus* which cannot be closely matched in similarly immature examples of the present series.

Thomas stated that in *leucurus* the rhinal callous was suppressed, but in the coloured plate of that animal published in the British Museum Catalogue of 1888 it appears to be distinctly indicated; in all examples of *miselius* so far examined it is present, but is variable in extent and may have less significance as a distinguishing feature than was thought. As for the differences in colouration, they are of such a kind as to be completely accounted for by the bleaching, either partial or complete, of the slate under-fur and the very pale slate areas on the dorsum of tail and sole of pes. Such bleaching is a commonplace of museum experience and in some species takes place very rapidly; in *Notomys mitchelli*, for example, the fading of the basal zone of the fur throws into greater relief the

[1] The length of ear is not comparable with that given by Spencer, owing to a different usage in determining it.

[2] The length of M^{1-3} quoted in Spencer's list of dimensions is 12·0 mm., but in his natural size figure of the skull these teeth have a length of 9·25 mm. in close agreement with the above.

brown tips of the fur and produces a change in general colour almost exactly like that which distinguishes *Th. leucurus* (as figured) from *Th. minor miselius*.

As regards the name to be used for the smallest of the bilbies, it would appear that *leucurus* (1887), though having priority over *minor* (1897), is inappropriate and misdescriptive, since the tail is not wholly white, and should give place to Spencer's name *minor*. Further remarks will be made on the habits and distribution of the animal in another place, meantime experiments on the synthesis of *Th. leucurus* from *Th. minor miselius* by photo-oxidation are proceeding.

Pseudomys (gyomys) apodemoides, sp. nov.

A small pale blue-grey mouse, the most southerly of the *albocinereus-glaucus* group so far taken. Closely resembling these two species in colouration but markedly distinct from its nearest geographical allies in the subgenus, *Ps. (gyomys) novae-hollandiae* (Waterhouse) and *Ps. (gyomys) desertor* (Troughton).

The following description is founded on living or freshly-killed animals. General colouration of dorsum at a little distance a light ashy blue-grey, remarkable for the coldness of its tone and the virtual absence (or great reduction) of all fulvous tint. Fur exceedingly fine, soft, and erect, recalling, in young examples, that of *Petaurus breviceps*. Mid-dorsally the bulk of the fur is 12 mm. long, but a few guard hairs reach 15 mm. The basal $\frac{3}{4}$ of the fur, a dark slate, succeeded by an ashy terminal band, the effect of which is little modified by the rather sparsely distributed guard hairs which are black tipped. The overlay of guard hairs is reduced on the muzzle and increased slightly on the rump, but, nevertheless, the general dorsal colour is very uniform. The ventral fur for its basal half a paler slate than on the dorsum; the distal half pure white and the general external colour of the belly also white, the basal slate colour not showing through. On the sides the passage from the dorsal to the ventral colouration is rather gradual, and there is no appearance of a fawn belt at the transition as in many *pseudomys* species. The lower facial and gular areas are white externally and slate basally, like the belly. The mysticial vibrissae are well developed, reaching 35 mm. in length—the anterior members of the set white, the posterior black. The ear is pale and naked within the conch but becomes darkly pigmented towards the upper margin, where also it is sparsely furred a pale brownish-grey. Externally the base of the ear is clothed with the crown hairs; the margins are fairly well covered with darker grey-brown hairs than those within. Tail evenly and moderately well haired, but its substance appearing a bright delicate pink in life. The anterior part of its dorsal surface is white, variably pencilled with dark grey, the sides and lower surface pure white. The dorsum of the hands and feet is furred a pure silvery white, but the palms and soles are bright pink. In the series examined the pelage is very constant, but it may be noted that in immature animals the tail tends to be wholly white, and as age advances the dorsal overlay of black-tipped guard hairs is considerably increased.

Skull.—Somewhat variable in the series examined, age characters being marked. The fully adult skull is of very peculiar shape; long, narrow, and with excessively fragile thread like zygomata, which are distinctly concave in outline when viewed from above. The muzzle region is long in comparison with the frontal, and the nasals taper posteriorly so sharply as to make almost a point contact with the frontals. As regards the subgeneric characters laid down by Thomas, the evidence of the zygomatic plate and pterygoid fossa is inconclusive.[3]

[3] The tone of Thomas's paper on the classification of Australian murines (Ann. Mag. Nat. Hist., series 8, vol. vi., p. 603) is such as to suggest that his creation of the four subgenera of *pseudomys* was a tentative step only. No statistical evidence as to the constancy of the characters chosen was given, and in forms so numerous and closely allied it is scarcely to be expected that sharp cleavages into restricted groups will be possible.

The anterior edge of the zygomatic plate slopes gently forwards from its upper angle to its base and is straight or feebly concave in outline. Both outer and inner pterygoids are moderately well developed and enclose a very obvious fossa. These features rather suggest *Thetomys*. On the other hand, since the first upper molar has no antero-internal cingular cusp and as its laminae are not "tilted back," *Gyomys* is indicated, and the size of the animal, its general external characters and obvious relation to *glaucus* and *albocinereus*, leave no doubt that this is its natural place.

Fourteen specimens examined.

Dimensions of the Largest Male and Largest Female Measured in the Flesh.

Head and body, 80, 90; tail, 97, 92; pes, 21·0, 20·5; ear, 16, 16.

Skull of Largest Male.—Greatest length, 25·8; basilar length, 19·3; breadth of brain case, 11·5; palatilar length, 11·5; palatal foramen, 5·0; nasals, 9·0 x 2·5; interorbital width, 3·8; bullae, 4·7; upper molar series, 3·8.

Type.—Adult female in South Australian Museum, M. 3466.

Habitat.—Upper South-Eastern district of South Australia; type locality, Coombe, in lat. 35° 50′ S, and long. 140° E., approx.

From *glaucus*,[4] which the present form approaches in bulk, it is distinguished by its smaller skull and molars, shorter tail, feet, and ears, and by the belly fur being white externally and not greyish. From typical *albocinereus* it differs in its much smaller size, and from the insular *albocinereus squalorum*, to which it corresponds exactly in bodily dimensions, it is distinguished by a slightly larger skull, darker dorsal colouration, and more densely furred tail.

Its correspondence to the insular *squalorum* is very close, and the question of according it specific or subspecific distinction from *albocinereus* is a difficult one to decide. Although the habitats of the two forms (as at present ascertained) are separated by an immense tract of at least 1,500 miles, it has to be remembered that the littoral belt of the South-West, and the Southern districts and archipelagos of this State, show certain faunal likenesses which argue a continuous distribution at no very remote time. On the other hand, it is significant that the supposed identity of eastern and western rodent forms has seldom stood the acid test of a critical examination of adequate series of both. On the whole, it appears better to accord the new form the same degree of separation from *albocinereus* as *glaucus;* at least until specimens are obtained from intermediate localities.

For the whole series examined, I am greatly indebted to Mr. W. J. Harvey, whose keen interest and promptness has enabled me to keep the living animal under observation and has supplied some details of its occurrence and habits. These and allied matters will be dealt with elsewhere.

[4] *Glaucus* was said by Thomas to be the largest species of the subgenus, but the dimensions quoted [Ann. Mag. Nat. Hist., series 8, vol. vi., (1910), p. 608] are uniformly smaller than those of *albocinereus* taken by Shortridge in the Avon District in 1906 (P.Z.S., 1906, vol. ii., 776).